

Berm Dust from Kennecott Retaining Pond

In January 2012, the Environmental Epidemiology Program (EEP), Utah Department of Health received an inquiry from a concerned citizen regarding possible negative health effects from inhalation of berm dust from Kennecott mine tailing evaporation ponds. The citizen reported that each time they drove through the dust along Interstate 80 (I-80) they experienced malaise and sore throat for 2 to 3 days.

Upon further inquiry by the EEP the citizen expressed concern regarding particulate matter from the berm surrounding the evaporation ponds. Concern centered on chemicals added to the water that was sprayed onto the berm to inhibit dust and promote plant growth. Another concern was where Rio-Tinto, Kennecott's owner, obtained the fill material used to build, maintain, and extend the berm. The citizen inquired that if the material was obtained from mine waste material then the berm dust may include heavy metals. Finally, a concern was raised if the Utah Division of Environmental Quality or Rio-Tinto had ever quantified the amount of material lost off the berm and to the north over the I-80 and into the Great Salt Lake.

The Kennecott north tailings pond covers 3,560 acres. This accounts for 700 acres of the decant pond which is underwater, 2,000 acres of saturated beach, and 950 acres of tailings embankment (J. Sekulski-Barton, personal communication, February 14, 2012). The tailings pond parallels the southern edge of I-80 from a distance of 300 to 2000 feet for nine miles east of Utah State Route 202. From year 2005 to 2010, about 27,000 vehicles and an estimated 40,000 people traveled this portion of I-80 each day (UDOT, 2011).

As prevailing Wasatch front winds shift more consistently during the summer months, night and early morning winds are southerly and the direction reverses as the day progresses (UDEQ, 2011). Thus, berm dust blowing onto I-80 most likely occurs during the night and morning hours. It should also be noted that strong weather systems moving into the area can also generate southerly winds.

The EEP contacted Kennecott and their response includes the following information: Tailings are the material remaining after crushing, grinding, and separating metals from the ore mined from Bingham Canyon. Mill tailings are separated into fine and course fractions after arriving at the impoundment. The fine fraction is moved to the saturated interior and the coarse fraction is directed to the perimeter of the impoundment where it is used to construct the impoundment dikes. The course fraction is similar in size and consistency to beach sand and is the material most likely to become airborne during high winds (Doughty, 2012).

Kennecott sprays the tailings embankment with water and commercial dust suppressants. The current suppressant used is called HaulPro which is manufactured by Midwest Industrial Supply. The Materials Safety Data Sheet (MSDS) indicates the following: HaulPro is a light-brown colored liquid emulsion with a musty woody odor. It is formulated from pine rosin, pitch (tar-like substance), and water. Its pH ranges from 6 to 9. It is often diluted with water in ratios of 4:1 to 15:1 when applied. Misting of HaulPro may cause slight eye and respiratory irritation. It is relatively non-toxic to the digestive tract (Supply, 2006).

Resources evaluating the metal concentrations in tailings and underlying soil were provided by Kennecott via an Environmental Impact Statement (EIS) prepared by the U. S. Army Corps of Engineers (U.S. Army, 1995). It lists data from sampling of the south tailings impoundment. Kennecott states that the data continue to be valid and representative of what the tailings materials contain today and will continue to store in the future. Results show that average metal concentrations of the constituents (arsenic, chromium, lead) in surface tailings were similar to those in average western soils except for copper. In addition, Kennecott does not measure the quantity of wind-blown material from the berm stating, "Given the similarity of tailings to average western soils, dust from the tailings would be nearly indistinguishable from dust originating from other sources, such as the interstate, beach material from the Great Salt Lake and dirt from agricultural and other fields" (Doughty, 2012).

After reviewing the response from Kennecott, it is the EEP's opinion that further studies identifying and quantifying those materials migrating from the pond berm onto the interstate during strong southerly winds are needed. This information would benefit both public health assessment and

Kennecott's assessment of their dust suppression scheme. Without that data, the correlation of possible negative health effects from exposure to pond berm dust particulates cannot be adequately determined. Furthermore, the EEP recommends that concerned citizens take steps to protect their own health when driving through dust along this part of I-80 by closing vehicle windows and tops, recycling cabin air, and maintaining the inside air filter according to vehicle manufacturing suggestions.

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